PATENT SPECIFICATION

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COMPLETE SPECIFICATION.

Improvements in and relating to Tools and Tool Holders.

I, Otto Altenbach, a German Citizen, of Schwanenstrasse, Ohligs-Solingen, Germany, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to improved means for locking a pivoted or detachable blade or tool in a holder.

Tools are known, comprising a holder or handle and one or more blades or tools pivoted therein or detachably mounted therein and adapted to be held in the operative position by a spring locking piece which can be moved to engage a notch in the blade. Also it has been proposed to fit a knife handle with a series of tools formed integrally with a rotatable member mounted at or near one end of the handle and to provide a series of holes or recesses in the member into which a spring pressed pin is adapted to snap to lock the desired tool in operative position. In this arrangement the spring carrying the pin was mounted on the outside of the handle and provided with a second pin which projected through the handle so that it could be pressed inwards to release the lock.

According to the present invention the tool is locked in the operative position by a pin engaging a hole, notch or recess in the tool and a device is provided which can be moved into a locked position and serves to force and to hold the locking pin in the locking position until it is moved to release it, when the pin automatically springs free from the tool.

In one arrangement, the tool, which may be a single blade if desired, is pivoted between two members forming a handle, one member of the handle being of spring material and carrying the locking pin or pins. A projection on the other member of the handle passes through a hole in the first member and carries a pivoted cam piece on its end. The cam piece is so arranged that it can be turned to press against the spring handle member forcing the pin or pins into a hole or holes in the tool, thus locking the tool. To release the tool the cam piece is turned to remove the pressure.

Obviously the pin or pins could be carried on a separate spring attached to the handle which then need not be of spring material, the separate spring being under the influence of the cam device.

The cam device may be conveniently mounted on the pivot of the tool or blade instead of providing a separate projection therefor.

To enable the invention to be fully understood it will now be described by reference to the accompanying drawings in which:—

Fig. 1 is an elevation of a tool having locking means constructed according to one form of the invention, and.

Fig. 2 is a plan view thereof.

Figs. 3 and 4 are views of details, Fig. 3 being drawn to a larger scale.

As shewn the tool comprises two handle members 5, 6, having a folding blade 7 pivoted between the members at 8 with the usual back spring 9, and also a tool 10 carried on a rotatable pin 11 mounted in the handle as shewn in Fig. 4. The tool 10 comprises the separate tools *a*, *b*, *c*, which can be brought into operation as desired in the known manner and each tool locked in the operative position. As shewn *a* is a screw-driver, the notch therein being used for breaking glass or removing a stopper of the "crown" type. *b* is a screw-driver or it may have a sharp edge to form a cutting tool such as a chisel. *c* is a piercer which may be used as a tin opener or wire cutter. In Figs. 1, 2 and 4 the tool *a* is shewn in the operative position and when the tool is turned through 180° all the tools will be concealed in the handle. The two handle members 5, 6 are mounted so that the member 5 acts as a spring and two projections 12 (Fig. 4) are provided on the inner side thereof adapted to engage the holes or recesses 13 in the tool 10 to lock same. The rotatable pin 11 projects through the member 5 and on its projecting end carries a cross bar 14 on which is pivotally mounted a member 15 having two cam faces 16, 17. The member 15 is adapted for use as a finger piece for turning the pin 11 to manipulate the tool. To

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lock the tool the member 15 is turned down on to the handle as shewn in Figs. 1 and 2 so that the cam faces 16, 17 press on the handle 5 and cause the projections 12 to enter the appropriate holes in the tool 10 and hold them there until the member 15 is raised again.

Fig. 4 shews the member 15 raised with the cam faces 16, 17 clear of the handle 5. In this position the spring of the handle will withdraw the projections sufficiently from the recesses in the tool to allow the latter to be turned by the member 15.

The above device provides a simple and efficient locking means, holding the tool rigidly in the operative position.

Obviously the cam member may be mounted on a projection other than the pivot of the tool, and further a separate spring carrying the locking projections may be substituted for the spring handle member.

The invention may be applied to pocket knives and handles for holding detachable tools of various kinds as will be readily understood.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A tool comprising a holder and a pivoted or detachable blade or tool adapted to be locked therein in the operative position by a pin engaging a hole, notch or recess in the tool and a device which can be moved into a locked position and serves to force and to hold the locking pin in the locking position until it is moved to release it when the pin automatically springs free from the tool.

2. A tool according to claim 1 wherein a cam member is pivotally mounted on the outside of the tool handle and is adapted when moved into the locking position to press upon a spring member carrying the locking pin to force and to hold the pin in engagement with the hole, notch or recess in the tool.

3. A tool according to claim 2 wherein the tool handle comprises two members with the tool pivotally mounted between them, one member being in the form of a spring and carrying the locking pin or pins, a pivoted cam member being mounted on a projection fixed to the other handle member and projecting through an opening in the spring member in such a manner that when the cam is turned the spring member will be pressed forcing the locking pin or pins into engagement with the tool and holding them in the locking position until the cam is again moved to release them.

4. A modification of the tool according to claim 3 wherein a separate spring carrying the locking pin or pins is substituted for the spring handle member substantially as described.

5. A tool according to any one of the preceding claims wherein the member for locking the pin or pins comprises a cam member pivotally mounted on the projecting end of the pivot of the tool.

6. A tool of the kind referred to having a locking member constructed substantially as hereinbefore described and illustrated in the accompanying drawing.

7. Tools, constructed, arranged and operating substantially as hereinbefore described with reference to the accompanying drawing.

Dated this 10th day of July, 1930.

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